A retrospective study of mandibular fracture in a 2-year period

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Abstract:

This retrospective study evaluated the epidemiology, treatment and complications of mandibular fracture associated, or not associated, with other facial fractures, when the influence of the surgeon's skill and preference for any rigid internal fixation (RIF) system devices was minimized. The files of 700 patients with facial trauma were available, and the files of 300 patients with facial trauma were available, and 155 files were chosen for review. Data were collected regarding gender, age, race, date of trauma, date of surgery, addictions, etiology, signs and symptoms, fracture area, complications, treatment performed, date of hospital discharge, and medication. 155 patients suffered mandibular fractures associated, or not, with other maxillofacial fractures, and a total of 155 mandibular fractures were found. The incidence of mandibular fracturews was more prevalent in males. The most common site was the Parasymphysis, followed by the condyle.

Keywords: *mandibular fracture, epidemiology, facial trauma.*

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Introduction:

Mandibular fracture is the first or second most common facial bone fracture, occurring twice as frequently as fractures of the midface bones. The incidence is about 38% of all facial bone fractures. Mandibular fractures constitute the bulk of the trauma treated by oral and maxillofacial services.[1,2] Mandibular fractures constitutes the bulk of the trauma treated by oral & maxillofacial services.[3] Fractures of mandible present a unique problem to the facial surgeons. They were described in ancient Egypt around 1650 BC.[4] As a given force is applied, the bone no longer behaves elastically so internal displacement of the molecules and permanent deformity of the bone occurs.[5] A WHO statistics reports indicated that each year one million people die and between 15 and 20 million are injured due to RTA.[6]

The aim of the current retrospective study was to investigate the pattern of mandibular fractures in Dhaka in two years periods of 2014 and 2015 of Dhaka Medical College Hospital for evaluating the epidemiology, treatment and complications of mandibular fractures associated, or not associated, with other facial fractures, when the influence of the surgeon's skill and preference for any rigid internal fixation (RIF) system devices was minimized.

Patients and methods:

There were 300 files of patients with facial trauma who had been treated between 2014 and 2015 at Dhaka Medical College Hospital. In 155 mandibular fractures associated, or not, with other facial bone fractures were found.

Data were collected regarding sex, age, date of trauma, date of surgery, dentition, etiology, signs and symptoms, fracture area, treatment performed, date of hospital discharge, and drug therapy.

All patients were treated by the same oral and maxillofacial surgeon. When each patient arrived at the hospital for the first medical appointment, all dentate

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and some partially dentate subjects who presented with mandibular fractures in the body mandible, parasymphysis, and symphysis, were treated initially with a dental splint for reapproximation and immobilization of fractures. A circumdental stainless-steel wire was used on at least two stable teeth on each side of the fracture to achieve immobilization. The RIF technique was used in all surgical treatments, and intermaxillary fixation (IMF) was not necessary beyond the introperative period. Fixation of mandibular fractures was performed using miniplate.

Initial radiographs were necessary for preoperative evaluation and establishment of a treatment plan. The postoperative radiographs were used to check fracture reduction and the position of plates and screws. Radiographs were also used for long-term follow-up. All patients were asked to return for post-surgery clinical evaluations. Follow-up visits were scheduled weekly up to one month post-surgery and monthly thereafter.

Results :

Mandibular fracture occurred in 124 male patients (80%) and 31 female patients (20%) resulting in a male : female ratio of 4:1. Their ages ranged from 4 to 70 years (Fig.1).

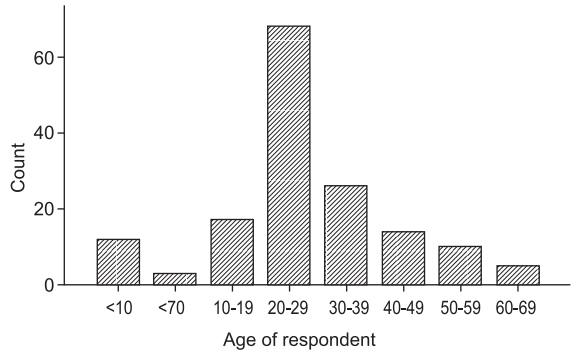

Fig.-1: *Distribution of patients age (years)*

Of the 155 patients maximum 26% received their surgery after 07 days as the injury, whereas the remaining 74% surgery was done 10 days although some patients underwent surgery within 3 to 20 days (Fig-2).

The distribution of signs of mandibular fractures in this sample is shown in table-1. The most common sign was facial swelling (72.9%), followed by Trismus (60.64%) and Malocclusion 59.35%.

The etiology most frequently observed in this study was traffic accidents, which affected 124 (80%) (Fig.-3)

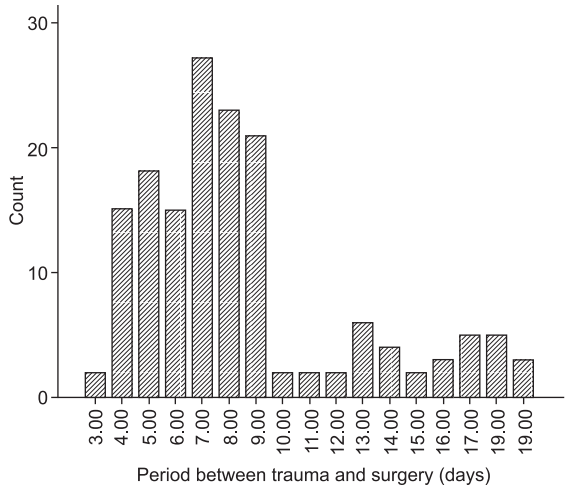

Fig.-2: *Period between trauma and surgery*

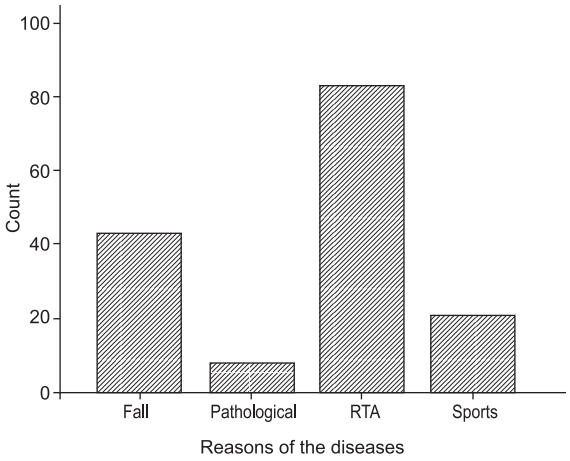

Fig.-3: *Distributin of trauma etiologies*

The distribution of the 155 mandibular fracture sites is shown in Table-2. The most common fracture site was parasymphysis (40.6%), followed by Condyle (29%) and Body (28.4%). There was a slight side predilection in the Parasymphysis and Condyle site.

Discussion:

Traffic accidents are the most common etiology for mandibular fractures in developing countries, whereas support accidents are the most common cause in developed countries, where traffics laws are more widely respected [7]. Most of the patients in this study were male (80%). The treatment modalities for mandibular fractures proposed in the literature are non-surgical and surgical. [8-10] The authors routinely use dental splints in fractures located at the body mandible, parasymphysis, and symphysis at the first appointment. Dental splint devices were constructed using a circumdental stainless steel wire, involving at least two stable teeth on each side of the fracture.

Mandibular fractures occur in a significant proportion of patients requiring prompt diagnosis of fractures and soft tissue injuries. Each year, increasing numbers of patients are admitted to the hospital with this fracture. The characteristics of mandibular fracture depend on various factors such as geographical place, culture, and socioeconomic background of the communities. However, epidemiological surveys across the world have exposed that some aspects of the facial fracture patterns remain similar among the various nations. The male predominance in our study in harmony with other reports from other countries such as Canada,[11] France,[12] India,[13] Iran,[14] Nigeria.[15] The predominance of males is due to most of females are housewives and were not greatly involved in the economic activity of the society. There were two studies from Iran showed females were more common than males.[16,17] This may be due to their living in mountainous (northwestern Iran), environmental and cultural backgrounds women are much more involved in outdoor activities (driving, etc.) resulting in their increase vulnerability to fracture accidents. In addition to that, women were involved in outdoor socioeconomic activities.

The peak incidence of fracture was in 20-29 years. represents an active period when individuals are more energetic involved in high speed transportation and outdoor activities.[18-20]

Conclusion:

In this study, the authors did not find many cases of complex fractures, and appropriate treatments were performed as soon as possible. Treatment was carried out by the same experienced surgeon for all 155 patients, and antibiotic therapy was employed when it was indicated. The tooth in the fracture line was removed when the tooth was mobile, had periodontal or periapical pathology, was partially impacted or was carious. The authors think that these precautions are the reason why there was not an excessive rate of complications.

This retrospective study of the epidemiology and treatment of mandibular fractures revealed that the therapy applied was effective in treating this type of fracture and showed rates of success comparable with published data around the world.

Recommendations: We recommend evaluating the fracture mandible after other next eight years.

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